IST-AFRICA 2012 – 2013
Contract No. 288691

D3.2 IST-Africa Horizon 2020 Workshop, Tunis, 16 December 2013

Workshop Report prepared by IIMC, Ireland and Ministere de l'Enseignement Superieur et de la Recherche Scientifique, Tunisia

Deliverable D3.2 IST-Africa H2020 Workshop, Tunis
Version 1
Date: 16 December 2013
Document ref: IST-Africa_Horizon2020_WorkshopReport_Tunisia_161213.doc

1. Workshop Context

Horizon 2020 will commence in January 2014 as the new Framework Programme to implement research and innovation with funds of €80 billion from 2014 - 2020.

Horizon 2020 will address all research and innovation funding that was previously provided through the Framework Programmes for Research and Technical Development (e.g. FP7), Competitiveness and Innovation Programme (CIP) and European Institute of Innovation and Technology.

Three main priorities:

- **Excellence Science** – Research Infrastructures, Marie Curie (Mobility Grants)
- **Leadership in Enabling and Industrial Technologies** (LEIT) – Components & Systems, Advanced Computing, Future Internet, Content Technologies and Information Management, Robotics, Micro and Nano-electronics and photonics
- **Societal Challenges** – Health, Food Security & Agriculture, Energy, Transport, Climate action and Environment, Innovation and reflective Societies and Secure Societies

Ministere de l'Enseignement Superieur et de la Recherche Scientifique, as the IST-Africa partner in Tunisia organised a Horizon 2020 Workshop in Cité des Sciences, Tunis on 16 December 2013. All relevant stakeholders were invited to participate to raise awareness of the opportunity for research cooperation at international level.

The workshop was very well attended with over 60 participants from APII; CBBC; CEA France; CERT; INSAT, Carthage University; ISCU, Carthage University; Directorate-General for Scientific Research; Ecole Nationale Supérieure d'Ingénieurs de Tunis (ENSIT); Ecole Supérieure des Communications de Tunis; ENIT; ENSI; ENSI/CERT; ENSIT University of Tunis; Higher Institute of Computing and Management of Kairouan; INRAT; IPT; ISI; ISIGK University of Kairouan; Ministry of Higher Education and Scientific Research; National Engineering School of Tunis (ENIT); National Tempus Office of Tunisia; SMARTECO Group; Sup'Com; Tunisia Polytechnic School; Tunisie Telecom; UAS (Université Arabe Des Sciences) and University of Manouba.

2. Workshop Report

2.1 Introduction

Prof. Noureddine Hamdi welcomed the participants to the IST-Africa Horizon 2020 (H2020) Workshop to learn more about opportunities under H2020 Calls during 2014. Prof. Hamdi invited Prof. Slim Choura, Director General of International Cooperation, Ministry of Higher Education and Scientific Research to make the opening speech.

Prof. Choura indicated his pleasure to open the IST-Africa H2020 Workshop and thanked the organisers and participants for accepting the Ministry's invitation to participate. While Tunisian research departments are generally familiar with the European Framework Programmes on Research and Technology Development, Prof. Choura indicated that all participants would agree that additional efforts are required to ensure that Tunisian participation in H2020 reflects the national research and innovation potential. Research, in all its diversity, must address the huge scientific, technological, economic and societal challenges and must be in line with global research dynamics. Health, food security and nutrition, sober resources management, tackling climate changes, the development of digital economy are some of the major challenges that research and innovation actors in Tunisia and elsewhere in the world are requested to address jointly within the framework of H2020.

Tunisia has significantly invested in research. Tunisia's part in the world scientific production has shown a five fold increase since the reform of its research system in 1996. At the regional level, Tunisia produces nearly half of the scientific publications in the Maghreb region, 48% to be exact, against only 25% in 1996. The evolution of Tunisia's scientific production is not only quantitative. In fact, the average number of citations in indexed journals is constantly progressing, which ultimately means a better global impact.

However, there is still a lot to do in order to get Tunisia's research to the marketplace and ensure its full contribution to the development of its economy and the well-being of the Tunisian people. For instance, patent registration and research valorisation within companies is still well below the potential of our National Innovation system. Impact on competitiveness and employment is still weak. The current state requires an efficient linkage between research and industry; it requires efficient technology transfer mechanisms. Prof. Choura highlighted the need to stimulate private investment in R&D especially within large companies, the need to inspire needs-based R&D and to enhance the quality and impact of research.

Horizon 2020 stresses the necessity to develop technology transfer and innovation in order to transform research results into investment, development and creation of jobs.

Prof. Choura outlined the significant assets that Tunisia has to bring to collaboration under H2020:

- The well-structured Higher Education and research system which counts nearly 320,000 students within 13 universities, 37 public research centers, an national agency for the promotion of scientific research and a network of techno parks. There are about 22,000 full time equivalent researchers in Tunisia and the country spends nearly 1% of GDP on R&D.

- Tunisia has a strong partnership with Europe and the Euromed region. For years, Tunisia has built distinguished record of cooperation with the EU. Tunisia was the first country to sign an association agreement with the EU in 1995. It has maintained a steadily improving participation in the Framework Programs. With over 80 projects and €13.4 million Euros in research funding in FP7 Tunisia is ranked fourth in Africa and first per capita.
- Tunisia is enhancing its position in EU-Africa bi-regional cooperation. As well as active participation in the IST-Africa Initiative, Tunisia has recently announced in a high level meeting Tunisia's commitment to cooperate in all EU-Africa initiatives in STI and Tunisia's readiness to offer its expertise that has been gained via its cooperation within the EU-MED partnership framework. Tunisia will cooperate with ERAfrica, CAAST-NET+ and all other flagship initiatives.

In addition to these assets, the Ministry of Higher Education and Scientific Research is actively working to ensure a close coordination between national research and innovation actors for a better participation in H2020. An inter-ministerial committee for research cooperation with the EU has recently been launched. It is planned to open a liaison bureau with the EU to assist the national research community to participate better and more in H2020 and to designate an EU-Africa contact point for STI.

In terms of ICT research, Prof. Choura outlined that we live in a world that relies more and more on ICT as a means of wealth creation and economic growth and also as an instrument of sharing knowledge and of participation in public life. Therefore, supporting ICT research and providing extensive e-skills to people results not only in an improved economic competitiveness but also and ultimately in enhanced citizenship. ICT is an enabling technology just like electricity was in the past and nanotechnology will be in the future, Internet is already changing our lives. Partnership is highly important in ICT and the IST-Africa Initiative is working very well due to its openness and to the inclusive approach that it takes to supporting collaboration.

In conclusion Prof. Choura wished the participants a fruitful workshop.

Paul Cunningham, IIMC, Ireland provided an overview of the IST-Africa Initiative which is supporting this workshop. The IST-Africa Initiative was founded in 2002 by IIMC, Ireland and has now grown to a partnership with Ministries and National Council responsible for Information Society, ICT and/or Innovation in18 African Member States[1]. The IST-Africa Initiative is

[1] IST-Africa partners: IIMC International Information Management Corporation Limited ("IIMC", Ireland); Ministry of Transport and Communications ("MTC", Botswana); Ministere de l'Enseignement Superieur et de la Recherche Scientifique ("MESRS", Burundi); Agence Nationale des Technologies de l'Information et de la Communication ("ANTIC", Cameroon); Ministry of Communications and Information Technology ("MCIT", Egypt); Ministry of Communication and Information Technology ("MCIT", Ethiopia); Ministry of Environment, Science and Technology (Ghana) Ministry of Education, Science and Technology ("MoEST", Kenya); Ministry of Communications, Science and Technology ("MCST-L", Lesotho); National Commission for Science and Technology ("NCST", Malawi); National Computer Board ("NCB", Mauritius); Instituto Nacional de Tecnologias de Informacao e Comunicacao ("INTIC", Mozambique); National Commission on Research, Science and Technology ("NCRST", Namibia); Ministère de

supported by the European Commission and African Union Commission with co-funding under FP7.

IST-Africa facilitates and supports:

- International Innovation, Policy and Research Cooperation;
- Knowledge sharing and Skills Transfer between IST-Africa partners;
- Collaborative Innovation, Entrepreneurship and Adoption of Living Labs Methodologies;
- Information Society, ICT and Innovation Aspects of the Africa-EU Strategic Partnership;
- Awareness of African Research Capacity, cross-border cooperation and participation in Horizon 2020
- Establishment of National Contact Points in IST-Africa partner countries

The Ministry of Higher Education and Scientific Research leverages the IST-Africa Initiative to actively promote the national research community by

- Presentations at International events
- Chapter on Tunisia as part of the overall IST-Africa Study on ICT Initiatives and Research capacity
- Publishing articles on ongoing and emerging ICT and Innovation activities in Tunisia on the IST-Africa portal and in the Newsletter
- Raising awareness of upcoming Calls for Proposals and international funding opportunities
- Assists institutions in preparing for new opportunities such as Horizon 2020
- Raises awareness of activities being undertaken in other African countries
- Supporting the publishing of Organisational profiles on IST-Africa portal to raise awareness of activities in wider community
- Has access to IST-Africa Network including Ministries and National Councils in 17 African Countries to share knowledge, experiences and success stories
- Has first-hand experience of what is involved in being part of International funded activities under the European Framework Programme.

Participants were encouraged to visit the IST-Africa portal[2] and download relevant papers and reports.

Prof. Moez Jabara, FPC INCO NCP, provided an overview of the FETRIC INCO project[3] - Gateway to European Tunisian cooperation, which runs from 2013 - 2016. Prof Jabara outlined that Tunisian participation in FP7 was divided into 3 areas: Cooperation/Research 59%, Marie

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l'Enseignement Supérieur et de la Recherche (“MESR”, Senegal); Department of Science and Technology (“DST”, South Africa); Ministry of Information Communication Technology (“MICT-S”, Swaziland); Tanzania Commission for Science and Technology (“COSTECH”, Tanzania); Ministere de l'Enseignement Superieur et de la Recherche Scientifique ("MHESR", Tunisia) and Uganda National Council for Science and Technology (“UNCST”, Uganda).

[2] http://www.ist-africa.org/home/default.asp?page=reports

[3] http://www.fetric.eu/

Curie 18% and Capacity Building / Laboratory 23%. The FETRIC project has three main activities: Supporting the preparation of the EC-Tunisia JSTCM (Road map / bilateral STI cooperation, Coherence Bilateral/Regional Dialogue), Innovation Policy Review (Involvement of society in societal challenges, Valorisation and communication of results) and Setting up of FETRIC Liaison office and Consolidation of the Tunisian networks of multipliers.

2.2 African Participation in FP7

Miriam Cunningham, IIMC, Ireland provided an overview of how African participation in FP7 has grown steadily over the past seven years. As at September 2013 there were 1315 participations from 45 African countries in 565 projects with a total grant funding of €178 million euro from the European Commission going into African institutions.

The table below provides an overview of the number of projects[4] secured in each IST-Africa partner country as at November 2013:

Country	Thematic areas
Botswana	9 FP7 projects - ICT (4), INCO (1), Environment (1), Health (2) and Food, Agriculture and Biotechnology KBBE (1)
Burundi	3 FP7-ICT projects
Cameroon	23 FP7 projects - ICT (4), INCO (1), Environment (4), Health (6), Infrastructures (1), Food Agriculture and Biotechnology KBBE (1), NMP (1), Science Society (1), Space (1), SSH (2)
Egypt	96 FP7 projects - ICT (9), INCO (19), Environment (12), Health (6), Space (3), Social Sciences (7), Energy (4), INFRA (4), NMP (1), People (7), Science in Society (2), Food Agriculture and Biotechnology (KBBE) (17), Regpot (2), SEC (1), Transport (2)
Ethiopia	23 FP7 projects - ICT- (2), Environment (8), Health (5), Food Agriculture and Biotechnology KBBE (3), Space (2), Social Sciences (3)
Ghana	43 FP7 projects - ICT (3), Environment (6), Health (17), IDEAS (1), INCO (2), Food Agriculture and Biotechnology KBBE (6), NMP (1), People (1), Space (2), SSH (4).
Kenya	68 FP7 projects - ICT (5), INCO (4), Environment (18), IDEAS - ERC (2), Health (14), Food, Agriculture and Biotechnology KBBE (13), INFRA (3), People (3), Science in Society (2), Space (2), Social Sciences (1), Transport (1).
Lesotho	4 FP7-ICT projects
Malawi	20 FP7 projects - ICT (2); INCO (1), Infrastructure (5), Environment (2), Health (8), Food, Agriculture and Biotechnology KBBE (1), Science in Society (1).
Mauritius	6 FP7 projects - ICT (3), Infrastructure (2), Health (1).
Mozambique	20 FP7 projects - ICT (5), Environment (3), Health (6), Food, Agriculture and Biotechnology KBBE (2), Space (4).
Namibia	11 FP7 projects - ICT (4), INCO (1); Health (1), Infrastructure (1), Food, Agriculture and Biotechnology KBBE (2), Science in Society (1).
Senegal	40 FP7 projects - ICT (6), INCO (3) Environment (9), Health (5),

[4] Guide to ICT Initiatives and Research Capacity in IST-Africa Partner Countries, January 2014, ISBN: 978-1-905824-41-0. Download from http://www.ist-africa.org/home/default.asp?page=reports

	Food, Agriculture and Biotechnology KBBE (9), IDEAS (1), People (1), Space (1), Social Sciences (4), Infrastructure (1).
South Africa	189 FP7 projects - ICT (19), INCO (11), Energy (5), Environment (28), Health (30), Infrastructure (11), Food, Agriculture and Biotechnology KBBE (32), NMP (3), People (8), Security (2), Science in Society (5), SME (3), Space (9), Social Sciences (12), Fission (4), Transport (7).
Swaziland	3 FP7 projects – 2 ICT, 1 Space
Tanzania	39 FP7 projects - ICT (5), Environment (4), Health (19), Infrastructure (1), Food, Agriculture and Biotechnology KBBE (5), SME (1), Space (1), Social Sciences (2), Transport (1)
Tunisia	88 FP7 projects - ICT (5), INCO (17), Environment (13), Energy (2), Health (10), Infrastructure (1), Food, Agriculture and Biotechnology KBBE (19), NMP (3), People (2), REGPOT (6), Science in Society (2), SME (1), Space (1), Security (1), Social Sciences (3), Transport (2)
Uganda	41 FP7 projects - ICT (6), INCO (2), Environment (6), Health (16), Infrastructure (1), Food, Agriculture and Biotechnology KBBE (6), People (3), Social Sciences (1)

Up to November 2013 Tunisia had successfully secured participation in **88** projects in FP7. This is broken down thematically into: ICT (5 projects); Energy (2 project); Environment (13 projects), Health (10 projects); INCO (17 projects); Infrastructures (1 project), Food, Agriculture and Biotechnology KBBE (19 projects); NMP (3 projects); PEOPLE (2 projects); REGPOT (6 projects); Security (1), Science in Society (3 project); SME (1 project); Space (1 project); SSH (2 projects); Transport (2 projects). Tunisian organisations had secured **€13.4 million** in research funding under FP7 (September 2013).

As at 31 December 2013, the following projects are now completed:

- **ICT: JOIN-MED** 2009 - 2011 (Centre National de L'informatique) Coordination and support action; **EUROAFRICA**-P8 2012 - 2013 (Centre D'etudes et de Recherches de Telecommunications) Coordination and support action, **PROBE-IT** 2011 - 2013 (Centre D'etudes et de Recherches de Telecommunications) Coordination and support action;
- **Energy: MEDIRAS** 2008 - 2011 (Solar 23 Tunis) Collaborative project
- **Environment: BAT4MED** 2010 - 2013 (Centre International des Technologies de L'environnement de Tunis) Coordination (or networking) actions, **FIRESENSE** 2009 - 2013 (Ecole Supérieure des Communications de Tunis) Collaborative project, **WASSERMED** 2010 - 2013 (Institut National Agronomique de Tunisie) Collaborative project; **CLIMB** 2010 - 2013 (Centre de Recherches et des Technologies des Eaux) Collaborative project, **FUME** 2010 - 2013 (Institut National de Recherches en Genie Rural, Eaux et Forets) Collaborative project,
- **Health: LEISHDNAVAX** 2009 - 2012 (Institut Pasteur de Tunis) Collaborative project, **LEISHDRUG** 2008 - 2012 (Institut Pasteur de Tunis) Collaborative project, **MEDCHAMPS**

2009 - 2013 (Institut National de La Sante Publique) Collaborative project, **RAPSODI** 2009 - 2012 (Institut Pasteur de Tunis) Collaborative project; **SPHINX** 2010 - 2013 (Institut Pasteur de Tunis) Collaborative project;

- **INCO: CB-WR-MED** 2010 - 2013 (Centre de Recherches et des Technologies des Eaux) Coordination and support action, **ETC** 2009 - 2013 (Ministry of Higher Education and Scientific Research & Institution de La Recherche et de L'enseignement Superieur Agricoles) Coordination and support action, **GENOMED-HEALTH** 2004 – 2005 (Institut Pasteur de Tunis) Specific Support Action, **MIRA** 2008 - 2013 (Ministry of Higher Education and Scientific Research) Coordination and support action, **RESOURCENET** 2006 – 2008 (Institut des Régions Arides) Specific Support Action; **BIOPROTECH** 2010 - 2013 (Centre de Biotechnologie de Sfax - Cbs) Coordination and support action,
- **INFRA**: **EUMEDGRID-SUPPORT** 2010 - 2011 (Centre de Calcul El Khawarizmi) Coordination and support action;
- **KBBE: AQUAMED** 2010 - 2013 (Institut National des Sciences et Technologies de La Mer) Coordination and support action, **ARIMNET** 2008 - 2013 (Institution de La Recherche et de L'enseignement Superieur Agricoles) Coordination and support action, **BIO CIRCLE** 2008 - 2011 (Centre de Biotechnologie Borj Cedria) Coordination and support action, **BIO CIRCLE 2** 2011- 2013 (Centre de Biotechnologie Borj Cedria) Coordination and support action, **BIOBIO** 2009 - 2012 (Institut National de Recherches en Genie Rural, Eaux et Forets) Collaborative project, **SUSTAINMED** 2010 - 2013 (Institut National Agronomique de Tunisie) Collaborative project;
- **NMP: CAPWA** 2010 - 2013 (Ecole Nationale D'ingenieurs de Tunis) Collaborative project, **OPEN GARMENTS** 2008 - 2011 (Ste Plat-Forme Industrielle de Confection Platico Sarl) Collaborative project;
- **Space: BRAGMA** 2012 - 2013 (Centre D'etudes et de Recherches de Telecommunications) Coordination and support action;
- **People: BAT4MED** 2010 – 2013 (Centre International des Technologies de l'environnement de Tunis) Coordination (or networking) actions, **VCVCL** 2010 - 2011 (Institut Pasteur de Tunis) Support for training and career development of researchers (Marie Curie);
- **REGPOT**: **AGORA** 2010 - 2013 (Institut National de Recherches en Genie Rural, Eaux et Forets) Coordination and support action, **BIODESERT** 2010 - 2012 (Université de Tunis) Coordination and support action, **ETRERA** 2010 - 2013 (Centre de Recherche et de Technologie de L Energie) Coordination and support action, **EUMEDNETVSTB** 2010 - 2013 (Institut Pasteur de Tunis) Coordination and support action, **SOWAEUMED** 2009 - 2012 (University of Sousse) Coordination and support action, **TEMP** 2009 - 2012 (Centre

Technique du Textile - CETTEX & Agence de Promotion de L'industrie et de L'innovation-API) Coordination and support action;

- **SME: PROBIOLIVES** 2010 - 2013 (Institut National de Sciences Appliquees et de Technologie), Research for the benefit of specific groups;
- **SSH: MEDPRO** 2010 - 2013 (Institut Tunisien de La Competitivité et des Etudes Quantitatives) Collaborative project;
- **Transport**: **ESTEEM** 2008 - 2009 (Société D'ingénierie Pour Le Développement Economique et Social) Coordination and support action;

As at 31 December 2013, 45 projects are still running:

- **ICT: IST-AFRICA Initiative** 2011 - 2013 (Ministry of Higher Education and Scientific Research) Support action, **IST-AFRICA Initiative** 2014 - 2015 (Ministry of Higher Education and Scientific Research) Support action,
- **Energy: REELCOOP** 2013 – 2017 (Alternative Energy Systems SARL; Ecole Nationale d'Ingenieurs de Tunis) SICA;
- **ENV: AFROMAISON** 2011 - 2014 (Observatoire du Sahara et du Sahel) Collaborative project, **AGRICAB** 2011 - 2015 (Observatoire du Sahara et du Sahel) Collaborative project, **CLARA** 2011 - 2014 (Centre de Biotechnologie de Sfax - CBS) Collaborative project, **CLIM-RUN** 2011 - 2014 (Université de Tunis) Collaborative project, **IASON** 2013 – 2015 (Agence de Protection et d'Amenagemement du Littoral) Coordination (or networking) actions, **MEDSEA** 2011 - 2014 (Sfax University) Collaborative project, **PERSEUS** 2012 - 2015 (Sarost SA) Collaborative project, **WAHARA** 2011 - 2016 (Institut des Regions Arides) Collaborative project;
- **Health**: **DEEP** 2011 - 2014 (Hopital D'enfants de Tunis) Collaborative project, **EUNAM** 2011 - 2015 (Centre D'etudes et Recherches Prospectives) Coordination and support action, **MASCOT** 2011 - 2014 (Hopital Farhat Hached de Sousse) Coordination and support action, **MEDIGENE** 2012 - 2015 (Institut Pasteur de Tunis) Collaborative project, **RESCAP-MED** 2012 - 2014 (Institut National de La Sante Publique) Coordination and support action,
- **INCO: ERANETMED** 2013 – 2017 (Ministry of Higher Education and Scientific Research) Coordination (or networking) actions, **ETRERA_2020** 2013 – 2016 (Centre de Recherche et de Technologie de l Energie) Support actions, **FETRIC** 2013 – 2016 (Agence Nationale de la Promotion de la Recherche Scientifique) Support actions, **FP4BATIW** 2013 – 2016 (Centre de Recherches et des Technologies des Eaux; Agence Nationale de Protection de L'environnement; Ecole Superieure des Sciences et Detechnologie de Hammam Sousse; Chambre de Commerce et d Industrie du Centre) Support actions, **GM_NCD_IN_CO** 2011 - 2014 (Institut Pasteur de Tunis) Coordination and support action, **INCOMMET** 2012 - 2014

(Institut National des Sciences et Technologies de La Mer) Coordination and support action, **MAGHRENOV** 2013 – 2016 (Agence Nationale pour la Maitrise de l'Energie) Support actions, **MED-SPRING** 2013 - 2017 (Centre de Recherches et des Technologies des Eaux & Ministry of Higher Education and Scientific Research) Coordination and support action, **MENFRI** 2013 – 2016 (Institut National de Recherches en Genie Rural, Eaux et Forets) Support actions, **SOHEALTHY** 2013 – 2015 (Centre National du Cuir et de la Chaussure) Support actions; **FP4BATIW** 2013 - 2016 (Centre de Recherches et des Technologies des Eaux, Agence Nationale de Protection de L'environnement, Ecole Superieure des Sciences et Detechnologie de Hammam Sousse, Chambre de Commerce et d'Industrie du Centre) Support Action

- **KBBE: ANIMALCHANGE** 2011 - 2015 (Institut National de La Recherche Agronomique de Tunisie) Collaborative project, **CHIBIO** 2011 - 2014 (Institut National des Sciences et Technologies de La Mer) Collaborative project, **COCONET** 2012 - 2016 (Institut National Agronomique de Tunisie) Collaborative project, **CREAM** 2011 - 2014 (Institut National des Sciences et Technologies de La Mer) Coordination and support action, **EAU4FOOD** 2011 - 2015 (Institut National de Recherches en Genie Rural, Eaux et Forets) Collaborative project, **FORESTERRA** 2012 - 2015 (Institution de La Recherche et de L'enseignement Superieur Agricoles) Coordination and support action, **LOWINPUTBREEDS** 2009 - 2014 (Institut National de La Recherche Agronomique de Tunisie) Collaborative project, **PARAVAC** 2011 - 2015 (Ecole Nationale de Médecine Vétérinaire) Collaborative project, **PRO-EEL** 2010 - 2014 (Institut National des Sciences et Technologies de La Mer) Collaborative project, **ULIXES** 2011 - 2014 (Université de Tunis) Collaborative project, **VMERGE** 2013 – 2016 (Institution de la Recherche et de l'Enseignement Superieur Agricoles) Collaborative Project targeted to a special group (such as SMEs), **WATERBIOTECH** 2011 – 2014 (Centre de Biotechnologie de Sfax - CBS; Centre International des Technologies de l'environnement de Tunis) Coordination and support action; **ARIMNET2** 2014 - 2017 (Ministry of Higher Education and Scientific Research, Institution de la Recherche et de l'Enseignement Superieur Agricoles) Coordination Action
- **NMP: BIONEXGEN** 2010 - 2014 (Centre de Biotechnologie de Sfax - Cbs) Collaborative project;
- **Science in Society: SHEMERA** 2011 - 2014 (Carthage University) Collaborative project; **BEWATER** 2013 - 2017 (Institut National de Recherches en Genie Rural, Eaux et Forets), Support Action
- **SSH**: **ARABTRANS** 2013 – 2016 (Association Forum des Sciences Sociales Appliquees) SICA;
- **Transport**: **SOLUTIONS** 2013 – 2016 (Mobili-T) Coordination action;

2.3 Introduction to Horizon 2020

Paul Cunningham, IIMC/IST-Africa presented Horizon 2020[5], which is the new European Framework Programme for Research and Innovation for 2014 – 2020, with funding of €79 billion. It is one of the largest research programmes and is open to participation from legal entities involved in research around the world.

Horizon 2020 will address all research and innovation funding previously provided by FP7 Framework Programme, Competitiveness and Innovation Programme (CIP) and European Institute of Innovation and Technology. There is a stronger focus on societal challenges and Innovation.

Horizon 2020 is open to International Cooperation. African research institutions can participate as part of International Consortia with partners from Europe to apply for funding as part of an international project addressing the challenges published in the Work Programme

Work Programmes for 2014 – 2015 was published on 11 December 2013 for a two year period and can be downloaded from both the IST-Africa portal and the Participants Portal.

Horizon 2020 Structure

- ***Excellent Science (Total Budget of €24.4 billion, ICT Budget c €4 billion)***

  Focus on World class Science as the foundation of tomorrow's technologies, jobs and wellbeing, need to develop, attract and retain research talent

  1. The European Research Council (€13.1 billion)
  2. Future and Emerging Technologies (€2.7 billion)
  3. Marie Sklodowska-Curie actions on training and career development (€6.2 billion)
  4. European Research Infrastructures (including eInfrastructures) (€2.5 billion)

- ***II Industrial Leadership (Total Budget of €17 billion, ICT Budget c €8 billion)***

  Focus on strategic investments in key technologies underpin innovation across existing and emerging sectors and support innovative SMEs to create growth and jobs

  1. Leadership in enabling and industrial technologies (€13.6 billion)
  2. Access to risk finance (€2.8 billion)
  3. Innovation in SMEs (€6.2 billion)

- ***III Societal Challenges (Total Budget of 29.7 billion, ICT Budget c €4 billion)***

  Focused on Innovation addressing societal challenges, breakthrough solutions coming from multi-disciplinary collaborations including social sciences and humanities, promising solutions that can be tested, demonstrated and scaled up

[5] Visit http://www.ist-africa.org/home/default.asp?page=horizon2020 and http://ec.europa.eu/research/horizon2020/

1. Health, demographic change and wellbeing (€7.47 billion)
2. Food security, sustainable agriculture, marine research & the bio-economy (€3.85 billion)
3. Secure, clean and efficient energy (€5.93 billion)
4. Smart, green and integrated transport (€6.33 billion)
5. Climate action, resource efficiency and raw materials (€3.08 billion)
6. Inclusive and reflective societies (€1.3 billion)
7. Secure Societies (€1.69 billion)

ICT is involved in all three pillars as outlined in the diagram below:

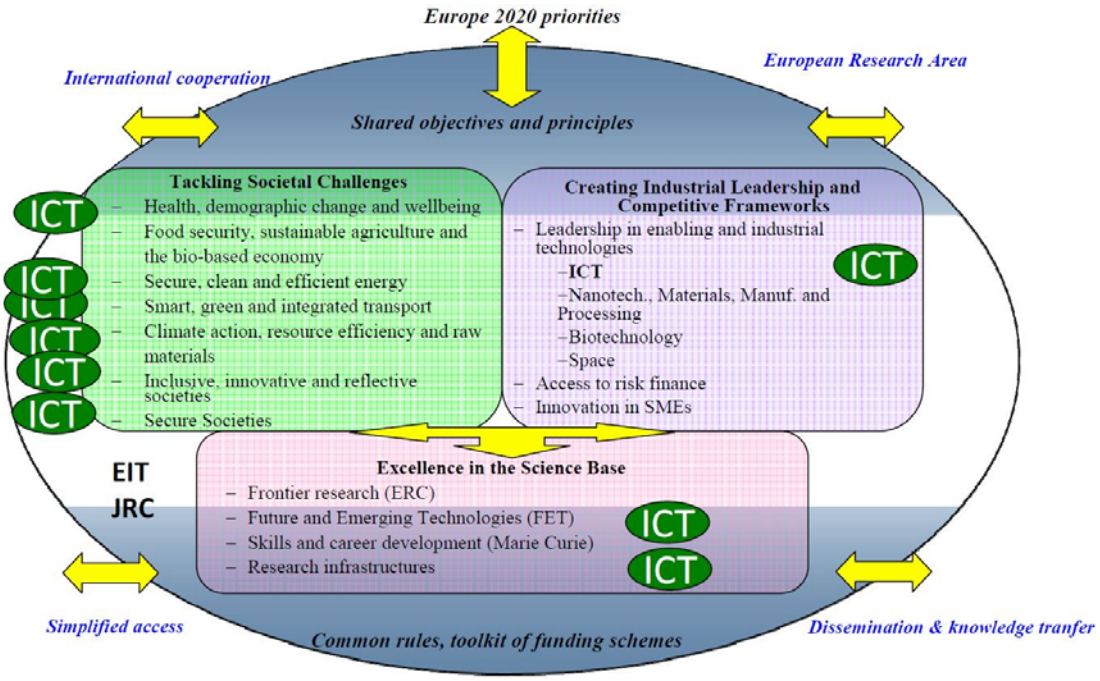

Image provided by DG CONNECT, European Commission

2.4 Snap Shot of Societal Challenges and LEIT in Horizon 2020

Miriam Cunningham, IIMC / IST-Africa Initiative provided a brief snap shot of research areas for cooperation under Societal Challenges Work Programmes and Leadership in Enabling Technologies and Industrial Technologies (LEIT) Work Programme. Each area has a separate Work Programme that provides the details for each specific call, deadline, instruments open for submission.

Due to the high number of Work Programmes and the short timeframe for Calls in some thematic areas, IST-Africa has prepared a Guide to 2014 Calls for Proposals in Horizon 2020. This guide lists each thematic area, deadlines and links to the Participants portal[6] for more detailed information. It can be downloaded from
http://www.ist-africa.org/home/files/IST-Africa_Guide_2014Calls_Horizon2020.pdf

[6] *http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html*

IST-Africa has a specific section on the portal[7] focused on Horizon 2020, which provides links to all the Work Programme - Marie Curie, Infrastructures, Societal Challenges (Health, Food Security and Agriculture, Energy, Transport, Climate action and Environment, Inclusive and Reflective Societies; Secure Societies) and LEIT.

Leadership in Enabling Technologies and Industrial Technologies incorporates six main areas:

1. Components and systems (Smart embedded components and systems, micro-nano-bio systems, organic electronics, large area integration, technologies for IoT, smart integrated systems, systems of systems and complex system engineering)
2. Advanced Computing (Processor and system architecture, interconnect and data localization technologies, parallel computing and simulation software)
3. Future Internet (Networks, software and services, cloud computing, cyber security, privacy and trust, wireless communication and all optical networks, immersive interactive multimedia and connected enterprise)
4. Content technologies and information management (Technologies for language, learning, interaction, digital preservation, content access and analytics; advanced data mining, machine learning, statistical analysis and visual computing, big data technologies)
5. Robotics (Service robotics, cognitive systems, advanced interfaces, smart spaces and sentient machines)
6. Key Enabling Technologies: Micro-nano-electronics and photonics (Design, advanced processes, pilot lines for fabrication, production technologies and demonstration actions to validate technology developments and innovative business models)

Societal Challenges fits under seven areas:

1. Health, demographic change and wellbeing (e-health, self management of health, improved diagnostics, improved surveillance, health data collection, active ageing, assisted living;)
2. Food security, sustainable agriculture, marine research & the bio-economy
3. Secure, clean and efficient energy (Smart cities; Energy efficient buildings; smart electricity grids; smart metering)
4. Smart, green and integrated transport (Smart transport equipment, infrastructures and services; innovative transport management systems; safety aspects)
5. Climate action, Environment, resource efficiency and raw materials (ICT for increased resource efficiency; earth observation and monitoring)
6. Inclusive, innovative and reflective societies (Digital inclusion; social innovation platforms; e-government services; e-skills and e-learning; e-culture) and

[7] http://www.ist-africa.org/home/default.asp?page=horizon2020

7. Secure societies (Cyber security; ensuring privacy and protection of human rights on-line)

2.5 Excellence Science

Paul Cunningham, IIMC / IST-Africa briefly presented Marie Curie actions on skills, training and career development and eInfrastructures.

Marie Curie Programme facilities individuals to access mobility grants to facilitate career development and up-skilling for research staff. Individual Fellowships incorporates International Outgoing Fellowships and International Inward Fellowships. Fellowship must be applied for by the host European institution through a proposal submitted under an Open Call. Fellowships provide costs of time and a monthly allowance for living expenses for between 1 - 3 years depending on the project accepted.

The Research and Innovation Staff Exchange (RISE) is a new type of exchange of research staff to stimulate transfer of knowledge. This programme can support African researchers to work with the European host organisation for a period of time or for the European researcher to come to work with an African organisation to support setting up or extending research skills. All levels of research staff can undertake short term secondments. A monthly stipend of 2,500 euro is provided within the project funding to cover living expenses while abroad. The person receiving the mobility grant remains part of the staff of their own institution. The proposal is submitted by a European research institution based on a common research project.

2.6 Summary of areas of research of participants

Following the overview of LEIT and Societal Challenges, each department and institution presented their current research areas. The table below summarises the main findings shared during the workshop:

Organisation	Department	Research areas
University of Tunis, ENSIT	Electrical	Signal audio, Image and Video Processing; Encryption (Watermarking); Smart filtering, Neuro-Fuzzy Tools
Tunis El Manar	ENIT - Electrical	Energy - smart energy, smart house, grid efficiency; Transport; Components; Control of systems (robots, agriculture, houses); Micro electronics
	IST - ENIT	Optical Communication System; Photonic Crystal structure; Solar cells
University of Carthage	SUPCOM - COSIM	Applied research; ICT for Environment (Disaster management, flood mapping, forest fires, accurate agriculture); Communication - signal, image; Biomedical audio and image analysis

	SUPCOM - COSIM, Doctoral School of ICT	Security; Networking; Signal and image processing; Embedded systems; Optical Networks (Telecoms area in general)
	SUPCOM - Grescom	Communication Systems and Components (wireless, optical, PLC); Embedded systems and components; Future Internet; Robotics; Energy Efficiency; Smart Transportation; eHealth
	Faculty of Human Sciences (Dept of English)	Applied Linguistics; Neuro Marketing; Neuro Education (role of Neuroscience to deliver Education and Languages)
	INSAT - Network, Telecoms	Mobile Networks
	Dept of Biology & Chemistry (INSAT)	Biotechnology; Immunology; Nicobiology
	Laboratory of Sciences and Technics, Agronomics, INRAT	Conservation Agriculture; Environmental
University of Manouba	ENSI - Hana Lab	Robotics: UAV; Machine to machine; Smart metering; Smart Grid; Internet of Things
Institut Pasteur du Tunis	Laboratory of Epidemiology & Veterinary Microbiology	Health; Statistical Genetics; Data Mining; Predictive Modelling
Smart Eco Group		Innovation; Entrepreneurship
Cynapays		Smart Grid; Robotics

2.7 ICT in Societal Challenges

Paul Cunningham, IIMC / IST-Africa, Ireland provided an overview of ICT components in Societal Challenges within Horizon 2020 in the areas of Health, Energy, Transport, Climate Changes and Environment, Inclusive, Innovative and Reflective Societies and Secure Societies. Specific ICT calls highlighted include:

Health

- PHC 19 – 2014) Advancing active and healthy ageing with ICT: Service robotics within assisted living environments; and ICT solutions for independent living with cognitive impairment
- PHC 20 – 2014) Advancing active and healthy ageing with ICT: ICT solutions for independent living with cognitive impairment
- PHC 23 - 2014) Developing and comparing new models for safe and efficient, prevention oriented, health and care systems
- PHC 26 - 2014 Self-management of health and disease: citizen engagement and mHealth

Energy - Smart Cities

- SCC 1 – 2014/2015: Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse projects
- SCC 2 – 2014: Developing a framework for common, transparent data collection and performance measurement to allow comparability and replication between solutions and best-practice identification
- SCC 3 – 2015: Development of system standards for smart cities and communities solutions

Transport

Road transport:

- MG.3.5-2014 Cooperative ITS for safe, congestion-free and sustainable mobility
- MG.3.6-2015 Safe and connected automation in road transport

- *Urban mobility* - MG.5.3-2014 Tackling urban road congestion
- *Logistics* - MG.6.3-2015 Common communication and navigation platforms for pan-European logistics applications
- *Intelligent Transport Systems* - MG.7.1-2014 Connectivity and information sharing for intelligent mobility

Climate Action and Environment

ICT solutions for waste traceability, waste material flow management

- WASTE-1-2014: Moving towards a circular economy through industrial symbiosis
- WASTE-2-2014: A systems approach for the reduction, recycling and reuse of food waste
- WASTE-3-2014: Recycling of raw materials from products and buildings
- WASTE-4-2014/2015: Towards near-zero waste at European and global level

Water management - Development and deployment of advanced ICT solutions for water resources management in agriculture and urban areas

- WATER-1-2014/2015: Bridging the gap: from innovative water solutions to market replication

Inclusive, Innovation and Reflective Societies

Reflective Societies

- REFLECTIVE 6 – 2015: Innovation ecosystems of digital cultural assets
- REFLECTIVE 7 – 2014: Advanced 3D modelling for accessing and understanding European cultural assets

New forms of innovation - Innovation in the public sector by using emerging ICT technologies

- EURO-6-2015: Meeting new societal needs by using emerging technologies in the public sector
- YOUNG-5–2014: Societal and political engagement of young people and their perspectives on Europe

ICT-enabled open government - Personalised public services, M-government, Open participation, Transparency

- INSO-1–2014, 2015: ICT-enabled open government
- INSO-9–2014: Innovative mobile e-government applications by SMEs

ICT for learning and inclusion - INSO-6-2014: Platform for ICT for Learning and Inclusion

Secure Societies

- DS 1 – 2014: Privacy
- DS 2 – 2014: Access Control
- DS 3 – 2015: The role of ICT in Critical Infrastructure Protection
- DS 4 – 2015: Secure Information Sharing
- DS 5 – 2015: Trust eServices
- DS 6 – 2014: Risk management and assurance models

2.8 Leadership in Enabling and Industrial Technology (LEIT)

Paul Cunningham, IIMC / IST-Africa, Ireland provided an overview of LEIT within Horizon 2020.

LEIT Call 2014 – Opened 11 December 2013, Closes 23 April 2014

- *Components and Systems*
  - ICT1 – 2014 Smart Cyber Physical Systems (Research & Innovation Actions; Innovation Actions)
  - ICT2 – 2014 Smart System Integration (Research & Innovation Actions; Innovation Actions, CSA)
  - ICT3 – 2014 Advanced Thin, Organic and Large Area Electronics Technologies
- *Future Internet*
  - ICT5 – 2014 Smart Networks and Novel Internet Architectures (Research & Innovation Actions)
  - ICT6 – 2014 Smart Optical and Wireless Network Technologies (Research & Innovation Actions, SA)
  - ICT7 – 2014 Advanced Cloud Infrastructures and Services (Research & Innovation Actions; Innovation Actions, CSA)
  - ICT9 – 2014 Tools and Methods for Software Development (Research & Innovation Actions)

- ICT13 – 2014 Web Entrepreneurship (Innovation Actions, CSA)
- ICT14 – 2014 Advanced 5G Network Infrastructures for the Future Internet (Research & Innovation Actions; Innovation Actions, CSA)

- *Content Technologies and Information Management*
  - ICT15 – 2014 Big data and Open Data Innovation and Take-up (Innovation Actions, CSA)
  - ICT17 – 2014 Cracking the Language Barrier (Research & Innovation Actions; Innovation Actions, CSA)
  - ICT18 – 2014 Support the Growth of ICT Innovative Creative Industries SMEs (Innovation Actions, CSA)
  - ICT21 – 2014 Advanced Digital Gaming (Research & Innovation Actions; Innovation Actions)
  - ICT22 – 2014 Multimodal and Natural Computer Interaction (Research & Innovation Actions; Innovation Actions)
- *Robotics*
  - ICT23 – 2014 Robotics (Research & Innovation Actions; Innovation Actions)
- *Cross cutting areas*
  - ICT31 – 2014 Human-centric Digital Age (Research & Innovation Actions, CSA)
  - ICT32 – 2014 Cybersecurity, Trustworthy ICT

Each area was presented in terms of the specific areas open for Research project under 2014 Calls for proposals, followed by discussion with the participants.

2.9 Participation Rules and Instruments under Horizon 2020

Miriam Cunningham, IIMC/IST-Africa, Ireland presented the participation rules and instruments under Horizon 2020. Horizon 2020 has a single set of rules covering all funding programmes to simply the procedure for applicants. Grant Agreements and Reimbursement of actual costs will remain the main funding mechanism.

Participants in Horizon 2020 can be legal entities from EU-27 Member States, Associated Candidate Countries, Associated States and International Cooperation Partner Countries. Legal entities from all African States except South Africa are funded on the same basis as their European colleagues – reimbursement of costs.

The types of organisations that are normally involved in research include Research Organisations, Universities, SMEs, Industry and public administration.

It is necessary for grant applications to be made by consortia that have a minimum of three independent legal entities from three different EU Member States or Associated countries.

African participants can then be added to this consortium. It is necessary to justify the participation of each legal entity regardless of what country they are established in as part of proving operational capacity.

Instruments in Horizon 2020 include:

- Grants for Research and Innovation – 100% funding of all activities and participants
- Grants for Innovation – 70% funding of all activities and participants –except non-profit (100%)
- Support and Coordination Actions - 100% funding of all activities and participants
- Programme Co-funding Actions
- SME-Instrument – Instrument to support specific SME activities in three phases
- Pre-Commercial Procurement (PCP) – Steer development to public sector needs
- Public Procurement of Innovative Solutions (PPI) – First buyer for innovative solutions
- Prizes – Support for two key categories of prizes (recognition and inducement) – still under discussion

Research and Innovation Actions are primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. May include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment. Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.

Innovation Actions primarily consist of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication. A ‘demonstration or pilot’ aims to validate the technical and economic viability of a new or improved technology, product, process, service or solution in an operational (or near to operational) environment, whether industrial or otherwise, involving where appropriate a larger scale prototype or demonstrator. A ‘market replication’ aims to support the first application/deployment in the market of an innovation that has already been demonstrated but not yet applied/deployed in the market due to market failures/barriers to uptake. 'Market replication' does not cover multiple applications in the market of an innovation that has already been applied successfully once in the market.

Support and Coordination Actions undertake studies, analysis, development of research and Innovation strategies, raising awareness of European Commission Programmes, setting up thematic working groups to address Challenges in specific thematic areas.

All instruments have an application template that must be used which can be downloaded from the Participants Portal.

The evaluation criteria for proposals include Excellence, Impact and Quality and Efficiency of the Implementation.

Eligible costs for reimbursement include:

- Personnel Costs (Salary and social security costs based on payroll costs, Reimbursement of costs based on timesheet outlining actual work undertaken)
- Subcontracting (e.g. printing of materials, non-core work)
- Other direct costs
  - Travel and subsistence allowances
  - Depreciation of equipment
  - Other necessary goods and services

There was a general discussion in relation to how to identify European Partners, the different types of roles that partners can have within a research proposal, how to co-design a proposal as a team activity, intellectual property rights and consortium agreements, and how proposals are evaluated.

2.10 Conclusion

The workshop was very interactive in style with participants asking questions and seeking clarification as required. A number of participants had been involved in FP7 and provided insights into their experiences and how they are now better equipped to look at opportunities in Horizon 2020. There were discussions in relation to how research can have more of a socio economic impact and play a role in supporting Government policy. Quite a lot of Tunisian Professors have taken their qualifications abroad and there are external supervisors for PhD candidates currently being supervised. Some institutions also have bilateral projects with institutions in France. It is necessary to leverage these extended networks when looking at potential partners under H2020. Research funding at national level can be very specific in nature while H2020 may provide opportunities to secure funding for broader topics. eInfrastructure is considered to a priority area with projects currently focused on future Grids. Clarifications were sought in relation to the new funding instruments and how to prepare a budget for proposals.

In relation to next steps, the participants were encouraged to download the IST-Africa Guide to 2014 Calls under H2020, the individual Work Programmes and identify relevant core areas for research collaboration under 2014 and 2015. Institutions were encouraged to prepare an organisational profile for publication and to identify key European partners based on existing relationships and bilateral projects.

The participants thanked the IST-Africa Consortium for providing the training workshop, which they found to be very informative and confirmed that they will share the knowledge learnt at departmental level within their institutions.

Prof. Noureddine Hamdi closed the workshop thanking the participants for attending and thanking Paul and Miriam for providing the training, which was very well received.

Participants

First Name	Name	Title	Istitution/Enterprise
Riadh	ABDELFATTAH	Associate Professor	Sup'Com
Fatma	Abdelkefi	Assistant Professor	Sup'Com
Imed	Abderrahim		Ministry of Higher Education and Scientific Research
Karim	AMOUS		SMARTECO Group
Selmani	Anissa		
M'hamed	BEN ABID	Chief Engineer	Directorate-General for Scientific Research
Sami	Ben Hadj Ahmed	Associate Professor	INSAT, Carthage University
Lobna	Ben nasr		ISCU Carthage University
Shiri	Bilef		
Faouzi	BOUANI	Professor	National Engineering School of Tunis (ENIT)
Sifi	Bouaziz	Professeur, Director	Laboratoire des Sciences et Techniques Agronomique, INRAT
Sipi	Bowaziz		INRAT

Kamel	Brahim		
Ismehene	Chahbi	Assistant Professor	University of Manouba
Mohamed	Cheikh	Director/Task-Force Innov	APII
Sofiane	Cherif	Head of the Doctoral School	Sup'Com
Slim	Choura	Professor, General Director of International Cooperation	Ministry of Higher Education and Scientific Research
Miriam	Cunningham	COO	IIMC International Information Management Corporation Ltd
Paul	Cunningham	CEO	IIMC International Information Management Corporation Ltd
Khouloud	Dammak		
Hamid	Doly		
Nour	Dougui	Assistant Professor	ENSI
Amine Dhraief	Dr.	Assistant Professor	ISIGK University of Kairouan
Sylvie	Ghalila	Professor	CEA, France
Rached	Gharbi	Professor, Head of Department	ENSIT, Tunis University
Adel	Ghazel	Professor	Sup'Com
Khaled	Grayaa	Professor, Director	ENSIT, Tunis University
Chahnez	Hachaichi	Student	INSAT
Noureddine	Hamdi	Professor	INSAT
Mohamed Salah	Harzallah	Coordinator	National Tempus Office of Tunisia
Hend	Hechmi		UAS (Université Arabe Des Sciences)
Zied	Hechmi		INSAT
Ghada	Jaber		INSAT
Moez	Jebara	Professor	CBBC
Siwar	Jendoubi		CERT
Belhssan	Kaabi	Dr	IPT
Souad	Manai		INSAT
Hela	Mbarek	University Professor	
Idoudi	Monuem		ENSI
Soumaya	Msallem		INSAT
Abdelhalim	Najjar	Assistant Professor	Higher institute of Computing and Management of Kairouan
Leila	Najjar	Associate Professor	Ecole Supérieure des Communications de Tunis
Monia	Najjar	Associate Professor	ISI
Mondher	Neifar	Associate Professor	Ecole Nationale Supérieure d'Ingénieurs de Tunis (ENSIT)
Driwech	Nesrine		INSAT
Samir	Oueslati	Masters, Telecommunications	Tunisia Polytechnic School

Salhi	Oumaima		INSAT
Khlifi	Oussema Khlifi		INSAT
Ali	Rhoumae		
Fatma	Riahi		INSAT
Truhu	Rono		
Lovate	Sami		
Hassene	Seddik	Professor	ENSIT University of Tunis
Ilhem	Slama-Belkhodja	Professor	ENIT
Tebini	Sondes		
Safa	Souissi		INSAT
Lamia	Soussi		INSAT
Faidi	Taha	Doctorant	ENSI/CERT
Roua	Touilhri		INSAT
Dorsaf	Trabelsi	Radio Engineer	Tunisie Telecom